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THE LATE LIEUTENANT-COLONEL J. EDGAR D. HOLMES, C.I.E., M.A., D.Sc., C.V.D., M.R.C.V.S.

OUR profession has sustained a very great loss by the death of Lieutenant-Colonel Holmes, the Imperial Bacteriologist at the Muktesar Laboratory. His death was due to cerebral hæmorrhage. He was born in 1867, and was the son of the Rev. John Holmes, of Tipperary. We have few men eminent in veterinary research, but Lieutenant-Colonel Holmes was one of them. As a scientist he had a wide reputation and his work at the Muktesar Institute has been invaluable. From the Grammar School at Tipperary he proceeded to Trinity College, Dublin, where he graduated in 1890. Some years later he took his M.A. degree, and in 1905 was made a D.Sc. for distinction in research work. He was appointed to the A.V.C. in 1895, and after four years' service, part of which was spent in India, transferred to the Indian Civil Veterinary Department. After serving as a Superintendent in the Department, he became Assistant Bacteriologist at the Muktesar Laboratory in 1901. During 1904-1906 he was deputed to Europe in order to take a post-graduate course of study, and on his return to India was appointed for a brief period Professor of Sanitary Science at Punjab Veterinary College, Lahore. In September, 1907, he became Imperial Bacteriologist to the Government of India, and was placed in charge of the Muktesar Laboratory, a position he had occupied ever since. His valuable research work in veterinary science won for him the Steel Memorial Medal in 1912, and in the following year the decoration of the C.I.E. was conferred on him. He was the author of a book called "Bazaar Drugs," and of a description of the Muktesar Laboratory and its work, which was published in three editions, in English, Urdu and Hindu, and of a great number of pamphlets and articles of scientific interest.

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Lieutenant-Colonel Holmes was a keen supporter of the turf and the owner or part owner of several race horses which have often been seen at Calcutta, Lahore, and other race meetings.

His death at the early age of 48 is a serious blow to veterinary science ; he had conducted much original research into cattle diseases in India, and was responsible for the preparation and issue of various sera from the Muktesar Laboratory. He was a specialist of great ability and was wholly devoted to his work, which had already been productive of marked results and was beginning to have a world-wide reputation.

Editorial.

ON THOUGHT.

DULL monotonous routine is the arch enemy of all progressive thought. The action that is more the outcome of habit than anything else will never lead us beyond a certain distance, often an unsatisfactory and faulty one. The way to the achievement of a result undertaken in a certain manner because it has always been carried out in this one and the same fashion, may be indirect and round about, not nearly the best, and occasion much unnecessary effort. Thought tends ever to improvement in action and methods of procedure. Well directed thinking may even effect betterment in the tools and instruments used in action. If we do a certain thing in a machine-like manner any deficiency in our method of doing it will not be apparent to us. The defect must be thought out and sought out. A book supplies us with reading material, but just to read it without thinking about what we have read is, as one writer has put it—"simply insulting the author." A volume on a subject in which we are interested, if intelligently and thoughtfully perused, will always do us good. It may open the mind's eye to a new vista and throw a beam of light on a dark place.

In the days of our youth we often think about puzzling cases we meet with in practice. Do we always meditate as much about our material and what we have been doing in connection with it as we get older ? We fear there is a leaning with advancing years towards a spirit of fatalism as regards much of our work, and yet if we are to keep fresh and do our best, effort, alertness of mind and hope must ever be our special attributes and companions. Earnest thought

will be the tree from which such fruit will arise. In no branch of science is the faculty of meditation more necessary than in that of research. The very essence of success in inquiry into obscure and doubtful questions is born of acute thought and reasoning—laborious careful investigation into the problems of disease necessitates liberal expenditure of brain power and intellect. We could write much here about the indifferent encouragement of scientific research in this country and the inadequate reward for its successful and valuable achievements, but it will be noted by the observer that this land is suffering now from its neglect, and will continue to be punished until it looks at the matter in a broad-minded, liberal and intelligent way. Research, whether in chemistry, in manufacturing processes, in the problems of disease will bring a sure and certain reward (if not primarily to the individuals concerned) to the nation, and hardly enough money can be expended on it. To be dependent on foreign lands for valuable chemicals and for manufacturing essentials is not a fact resulting from true economy or discerning foresight. To check pathological conditions that occur is not such good procedure as to prevent them arising. When half the money and effort expended on curing and treating disease is devoted to its investigation and annihilation then thought will come into its kingdom and advance all along the line will be heralded.

The Britisher has ever been one to do things rather than a type of man to think about them before doing them. He frequently confuses effort with action. Nevertheless there are fine minds here capable of getting the best out of research if they are only adequately encouraged and led in the right direction.

Within recent years in our own fields of everyday practice two changes of methods of treatment have occurred almost imperceptibly as the result of man's thought and action. We refer to the treatment of milk fever and that of wounds. Without Schmidt the Dane and his thought we should probably have gone on treating milk fever for untold years with chloral, whisky, or ammonium carbonate ; and without the meditation and action of some other men, brought about chiefly by the necessities of the situation, we should have continued to wash fresh wounds copiously with water, generally unclean, until the crack of doom, because tradition so dictated, and our fathers and forefathers did so before us. We have tried here to indicate the value of thought in bringing about scientific progress and improving our work, and we think we cannot do better than close by quoting some

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lines we recently read and paraphrasing them somewhat: "Perfection in the treatment of disease and in surgical methods ought always to be the aim, but it is an ideal impossible of full attainment. There is, however, always material and to spare to give the worker 'furiously to think.'"

G. M.

ROUMANIAN HOMAGE TO FRANCE.

THE following address, signed by all the members of the teaching staff of the Veterinary School of Bucharest, was received recently by the French Veterinary School:—

TO THE DIRECTORS,—The reopening of our Superior School of Veterinary Medicine takes place this year amidst very tragic events caused by the cruellest and most unjust of wars that has ever occurred. In commencing our studies our first thought has been for France, that inexhaustible source of genius in all the sciences, and which has created particularly the scientific teaching of veterinary medicine. We have always recognized the great part which your magnificent schools have played in the preparation of our teaching bodies, and in the general progress of veterinary medicine in our country.

Permit us, therefore, to express to you at this moment, when your Motherland is the victim of a totally unjust aggression, our sentiments of profound sympathy, of gratitude, and of admiration, and to share with you your mourning, your sadness, and your hopes.

Our most ardent wishes are for the complete victory of the French armies, which to-day, as formerly, are defending with unequalled heroism not only their country, but also the principles of right, of liberty, of human dignity, which constitute the most precious treasure of our civilization.

Hurrah for France!

Hurrah for French genius, which for many centuries has not ceased to enlighten the entire world.

There follows the signatures of a number of the most distinguished of our Roumanian *confrères*.

General Articles.

THE EVOLUTION OF THE HORSE—A ZOOLOGICAL STUDY.

Atavism of portion of the Appendicular Skeleton of the Horse.

By FRED. C. MAHON, M.R.C.V.S.
3, *Arlington Gardens, Chiswick, London, W.*

In introducing the subject of atavism in the horse, I beg to refer my readers to the *Veterinarian* for December, 1886, wherein occurs the following statements by J. Gresswell, Esq., entitled "The Evolution: Hypothesis," especially in regard to its bearing on pathology. This able writer adds: "Reversionary processes serve also to explain other irregularities of structure." To E. Haeckell's law, the "Lex Hereditatis interruptæ," are referred cases of atavism, of which alternation of generations is regarded as a physiological, and gout as a pathological example. The application of the law may be extended to indicate cases of reversion to a long-lost ancestral trait. . . .

The cases of supra-scapular developments recently brought before the Royal Medical and Chirurgical Society of London by Mr. Willett, Surgeon to St. Bartholomew's Hospital, and Mr. W. T. Walsham, Assistant Surgeon to St. Bartholomew's Hospital, were similarly regarded. Mr. Charles Gresswell, M.R.C.V.S., of Nottingham, informed W. G. Gresswell, Esq., that he recently saw a foal which presented a tridactyle foot. The latent splint bones were almost as largely developed as the cannon bone, and each was provided with pastern bones and a hoof. How clearly this points to the ancestral condition presented by the Eocene Eohippus, the Miocene Anchiterium, the Pliocene Hipparion. Again, Mr. Brodie Gresswell, M.R.C.V.S., Louth, recently showed me the leg of a foal in which the only development of bone below the hock was a small nodule in the position of the proximal part of the metatarsal. The dam had suffered for some years from stiffness of all joints below the

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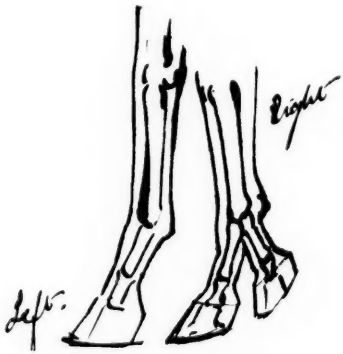
corresponding leg. There have also been cases of a similar nature in man. The former laws illustrate the importance of reversionary processes, while the last illustrates the more direct importance of incident forces.

On pp. 238-239 of the April number (*Veterinarian*, 1887) is a splendid authenticated example of "atavism" in a thoroughbred mare named Pincushion Jenny, who in her racing career proved a superior performer (see *Racing Calendar*, 1822-23). At three years old her transformation of nature commenced, the extra off hind leg, which is handsome and perfect, began to appear next her near hind leg, and afterwards her off fore leg, and at this time there is one making its appearance down the near fore leg.

Reviewing this case as a singularly interesting one, I was



constrained for years past to endeavour to ascertain the whereabouts of any existing horse showing reversion to an original type, and by accident was asked one day in November, 1892, to see a nine-year-old chestnut mare, the property of Mr. P——, travelling showman, who seemed very reluctant to have her examined. I ascertained afterwards that he was of opinion that if the fact of such a curiosity got mooted abroad a stop would be placed on his exhibition of the mare. Being interested, I telegraphed to my friend, Mr. H. C. Wilkie, F.R.C.V.S., F.Z.S., who kindly sketched the mare.

Unfortunately, I have since lost the drawing, otherwise I should have had same reproduced for the readers of THE VETERINARY JOURNAL to inspect. However, I append a sketch

roughly penned to illustrate this interesting case. The owner, I may add, says the supernumerary structures began to appear when the mare was just over five years old, and recently appeared to have reached its limit of extension. The hoof of the phalanges came to within a few inches of the ground, and was shod with a copper shoe, as the owner told me at the time, for "luck."

I desire to remind my readers that there are two interesting portions of the originization of existing horses, viz., their structure and the past history of the race as revealed by fossil remains, by far the most interesting from the former point of view being the parts which are rudimentary and apparently useless, structures occurring in several parts of the body corresponding with others which are fully developed in size, or altered in character so as to be of little if any use in its economy.

As Darwin says, they may be compared with the letters of a word still retained in the spelling, but become useless in the pronunciation, which serve as a clue to its derivation (as, for example, the "b" in "debt" and "doubt." Again, if we touch upon the important subject of specialization, we see (1) the addition of parts not met with in the generality of animals, and, as far as is known, not found in the earliest members of the groups which afterwards possess them, as, for example, the antlers of deer, the horns of oxen or the rhinoceros; (2) the suppression of structures commonly present, as the upper incisor teeth of ruminants, the tails of bears, guinea-pigs, &c., the extra toes of the horse, the extra limbs of porpoises, &c.; (3) the modification of the form, size, or relation of parts, as the immense development of the canine teeth in the walrus and male musk deer, the complicated foldings of the molar teeth of elephants, &c.

To understand the natural position of the horse in the zoological system, it will be necessary to take a wide glance at the whole group to which it belongs. That it is a vertebrate animal, and that it occupies a place in the class Mammalia no one will doubt. In this class it belongs to the great order "Ungulata," or hoofed animals, the principal characters of which are the following: They are all eminently adapted for a terrestrial life, and, in the main, for a vegetable diet. Their molar teeth have broad crowns, with tuberculated or ridged grinding surfaces, and they possess a completely developed set of milk teeth. Their limbs are adapted for carrying the body in ordinary

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terrestrial progression, and are of very little use for any other purpose, such as flying, climbing, seizing prey, or carrying food in the mouth. They have, however, no collar-bones; their toes are provided with blunt broad nails, which in the majority of cases more or less surround and enclose their ends, and are called "hoofs." The great majority of ungulate animals belong to either one or the other of two great and perfectly distinct sections, the most obvious of these being the character of their limbs, from which the names of the groups or sub-orders are derived; one of these called Artiodactyla, or "even-toed," the other Periosodactyla, or "odd-toed." In the former the third and fourth toes of both hind feet are almost equally developed, and altered on their inner or contiguous surfaces, so that each is not symmetrically developed to a line between them, the so-called cloven hoof. These two toes are always present and well-developed; the second and fifth may be present in varying degrees of development, or may be entirely absent. The first is not present in any known member of the group, even the most ancient.

It may safely be premised that few, if any, original workers at any branch of biology appear now to entertain serious doubt about the general truth of the doctrine, that all existing forms of life have been derived from other forms by a natural process of descent with modification, and it is generally acknowledged that to the records of the past history of life upon the earth we must look for the actual confirmation of the truth of a doctrine which accords so strongly with all we know of the present history of living beings. Professor Huxley wrote in 1875: "The only perfectly sure foundation for the doctrine of evolution lies in the historical, or, rather, archæological evidence, that particular organisms have arisen by the gradual modification of their predecessors, which is furnished by fossil remains." This evidence is daily increasing in amount and in weight, and it is to be hoped that the comparisons of the actual pedigree of these organisms with the phenomena of their development may furnish some criterion by which the validity of phylogenic conditions deduced from the facts of embryology alone may be satisfactorily tested.

Palæontology, however, reveals her secrets with no open hand. Witness the discovery towards the end of 1889 by Professor Marsh of numerous mammalian remains from formations

of the cretaceous period, the existence of which for so long had been a source of difficulty to all zoologists. Reviewing the necessary imperfections in records to hand, and taking an impartial survey of the real progress of palæontological discoveries, can we doubt that the evidence in favour of a gradual modification of living germs is still rapidly increasing?

Any regular progressive series of changes of structure coinciding with changes in time can, of course, only be expected to be preserved, and to come again before our eyes under such favourable combination of circumstances as must be of rare occurrence; but the links, more or less perfect, of many such series are continually being revealed, and the discovery of a single intermediate form is often of immense interest as indicating the path along which the modified form, one apparently distinct from another, may have taken place.

It is generally recognized that it is one of the main elements of Darwin's, as well as of every other theory of evolution, that there is in every individual organic being an innate tendency to vary from the standard of its predecessors, but that this inclination is usually kept under the sternest control by the opposite tendency to resemble it. These opposing forces are termed heredity and atavism.

Authorities worth quoting relative to "atavism" are Sir Arthur Mitchell, K.C.B., on "Blood Relationship in Marriage considered in its Influence upon the Offspring"; Darwin, "On the Descent of Man," 1885, also "Origin of Species," first edition; "Factors of Organic Evolution," nineteenth century (1886); "Darwinism," p. 443, London, 1888; "Philosophic Translations," 1881; Darwin, "Animals and Plants under Domestication," first edition, pp. 403, 886; Essays by Professors Harvey and Gusserow, and Mr. Savory; Sir W. Turner, M.B., LL.D., "Lectures on Comparative Anatomy of the Placenta," Edin., 1876.

My wish in penning this article is not to pose as an authority on the subject of atavism, but to place on record a brief account of what was to me, and I trust will be to others now, of interest.

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DIAGNOSIS AND DIFFERENTIAL DIAGNOSIS OF FOOT-AND-MOUTH DISEASE.

By D. H. UDALL.

Ithaca, New York.

Diagnosis.—The diagnosis of foot-and-mouth disease in cattle is not difficult when the disease is seen at its height in several animals. The chief diagnostic symptoms are the lesions in the mouth and around the feet (coronary border, between the claws), the rapid course reaching its height in three to five days; the rapid extension to all the animals in the herd; its extension to other species (swine, sheep), and the ease with which it may be transmitted to healthy young cattle by bringing virus in contact with abraded mucous membranes of the mouth. The lesions in the mouth are unlike those of any other form of stomatitis. In the very first stages the blisters in the mouth are small (vesicles); in two or three days they spread rapidly and rupture, so that the mucous membrane of the upper and lower lip may be nearly covered with a red granular surface, over which is deposited a yellowish necrotic mass, which has been in part removed. Similar lesions 1 to 2 in. in diameter may also appear on the dorsal surface of the tongue. The rapid loss in condition, drooling of the saliva, smacking of the lips, lameness, and the inability to eat complete the very characteristic and unmistakable symptoms of the contagion.

Differential Diagnosis.—The differential diagnosis of foot-and-mouth disease may become difficult when it occurs in an atypical form, when the lesions are slight (mild attack), or nearly healed, or when recovery has taken place and there remain only a few scars in the mouth. Other infections may then so closely resemble it that a positive diagnosis cannot be made by the physical symptoms alone. In such cases it is important to establish the contagious character of the disease by bringing salivary secretions or other suspected material in contact with the abraded oral mucous membranes of young healthy cattle. Should symptoms develop therefrom, the contagiousness and the character of the lesions may be further observed by repeated transmissions. Because of the short period of incubation and the very acute course of the disease the time required to complete such an experiment is short, and in doubtful cases the results

may be more conclusive than those derived from a physical examination of the original animals.

The first cases in an outbreak are liable to be wrongly diagnosed, because under normal conditions the disease is not present in this country. Since the nature of the virus is such that infection may occur in any part of the U.S. or Canada at any time, the importance of an early positive diagnosis of mouth affections in cattle is obvious.

In a restricted sense, the term "aphthous stomatitis" means foot-and-mouth disease; numerous other forms of aphthous stomatitis occur in cattle and other animals, and present very similar symptoms, but lack the specific characters that mark the true form. These have been variously named, according to their resemblance to the specific contagious form—pseudo foot-and-mouth disease, pseudo mouth-plague. according to the lesions—ulcerative stomatitis, erosive stomatitis, follicular and papillary stomatitis, vesicular stomatitis, and, according to the supposed cause, mycotic stomatitis. Marek includes all of these forms under the general heading of aphthous stomatitis, since this term (aphtha —a little ulcer) corresponds to their anatomical characteristics. He defines aphthous stomatitis as an independent infectious or toxic disease in which dead epithelial and fibrinous deposits form upon the oral mucous membranes. Foot-and-mouth disease is most liable to be mistaken for some of the following other forms of aphthous stomatitis.

(1) *Sporadic aphthous stomatitis*, erosive stomatitis, pseudo foot-and-mouth disease, mycotic stomatitis, misnamed vesicular stomatitis. This is a sporadic non-contagious disease thought to be due to infection, or to irritant chemical products (moulds, fungi, clover). It occurs chiefly in cattle, and is characterized by necrotic patches on the muzzle, lips, and the mucous membranes of the mouth; there may also be an inflammation of the coronary tissues of the feet, a papillary eruption of the skin on various parts of the body, and irregular necrotic patches on the teats. Punctiform yellow or grey necrotic spots appear either on the muzzle or margins of the lips, or on the mucous membranes of the lips, cheeks, gums, and tongue. These necrotic areas are small, round, or oblong in form, $\frac{1}{8}$ to $\frac{1}{4}$ in. in diameter, have a well-defined margin, are deep or superficial, and in some cases have an "eaten in" appearance. The areas may be covered with

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a thin yellowish or greyish deposit, much thinner than that of foot-and-mouth disease, underneath which one finds a dark-red sensitive bleeding surface.

The necrotic spots may spread slowly and fuse into one another, thus presenting a diffuse, rough, moist, yellowish surface. When they are few in number the course is mild and short (ten to fourteen days); when numerous the course may be severe, extend into weeks, and terminate in death. Salivation, smacking of the lips, inability to chew, and lameness may be present, as in foot-and-mouth disease. Fever is absent unless complications develop. It cannot be transmitted from animal to animal.

The following two case descriptions illustrate the chief symptoms of sporadic aphthous stomatitis:—

Case No. 1.—About October 1, 1914, a two-year-old Holstein heifer in a pasture with six other young cattle was noticed by the owner to have a yellowish spot on the muzzle; this spot gradually increased in size, nasal discharge and salivation appeared, and the animal lost in condition. On October 20, when presented at the clinic of the New York State Veterinary College, she presented the following symptoms: Condition fair; slight depression; not inclined to move about; the hair dry and rough; and the skin over the back and loins covered with a papillary eruption; mucous membranes slightly pale; temperature 101·4° F.; pulse 54; respirations 10. Salivation was marked; both nostrils discharged a yellowish-white mucilaginous secretion; there was a pronounced smacking of the lips; the muzzle was lemon-yellow in colour, moist, and roughened; on closer examination it was found to be completely covered with small necrotic spots that gave it the general appearance of a diffuse moist gangrene. On the mucous membrane of the lips, gum, and tongue were several small, slightly depressed spots from the size of a millet-seed to that of a pea, presenting a greyish surface; on removal of the superficial layer there remained a dark-red, very sensitive bleeding surface. The appetite was nearly absent, so that the only nourishment taken was a small amount of oatmeal gruel. The contractions of the rumen were weak and reduced to one per minute, the peristalsis weak, the evacuations from the bowels were slight, dry, and black, and covered with mucus. Around all four feet at the coronary region was an inflammation of the

skin with the formation of scabs. On November 4 the depression was marked, the back arched, the condition poor, the mucous membranes of the mouth very red, the gums were swollen, the skin had commenced to separate from the hoofs at the coronets, there was a knuckling of the hind fetlocks, the fæces were thin and fœtid, and the temperature 103° F. Death followed on November 18, and the autopsy made upon a very emaciated cadaver presented, in addition to the lesions already described, the following appearance: The dorsal surface, sides, and base of the tongue were covered with numerous black necrotic patches; the mucous membrane of the pharynx was thickened and covered with yellowish granular elevations that, upon pressure, appeared to squeeze out of lymph follicles; the mucous membrane of the œsophagus was covered with superficial ulcers; the large and small intestines were very much inflamed; in the cæcum and colon the mucous membrane was thickly studded with reddish elevations $\frac{1}{8}$ to $\frac{1}{4}$ in. in diameter, so that it presented a reddish, mottled appearance; the contents of the bowels appeared to be muco-purulent.

Case No. 2.—On November 7, 1914, a young cow in a stable with about twenty others, near Ithaca, was suspected by the owner to have symptoms similar to those of foot-and-mouth disease. On examination the cow was found to be slightly depressed, the hair was somewhat erect and roughened, and the temperature normal. On the inner surface and margin of the lower lip were about half a dozen deep erosions, the largest not more than $\frac{1}{4}$ in. in diameter; they were partly round, partly elliptical in form, the surface was dark, and they did not appear to be painful. Scattered over the teats were several reddish elevations that were similar to the scabs of cow-pox. No other symptoms were noted.

(2) *Aphthous Stomatitis in the Young* (foals, calves, lambs). —Small necrotic spots covered with a yellowish membrane appear on the skin of the lips or the oral mucous membranes, especially on the tongue and gums. The mucous membranes of the mouth are very red. In very young animals the death-rate is high. Several individuals in the herd are usually affected, but it is not yet established that the disease is contagious. This affection is not liable to be confused with foot-and-mouth disease.

(3) *Contagious Papillary Stomatitis in Cattle*, follicular

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stomatitis (Hess), papillary stomatitis (Degive).—This is described by Hutyra and Marek under the general heading of aphthous stomatitis, as a specific, infectious, non-febrile disease caused by an ultra-visible micro-organism. Flat nodules, from the size of a mustard-seed to that of a lentil, appear on the inner surfaces of margin of the lips, beneath the tongue, and on the cheeks; these nodules may fuse to form larger areas. The spots are at first grey, afterwards red, and surrounded by a zone. Absence of large vesicles, or extensive granulating areas, and of lesions on other parts of the body (feet, teats) serve to differentiate it from foot-and-mouth disease. So far as we know this disease has not been described in this country.

The symptoms of other inflammatory conditions are more uniform and present more definite characteristics.

(4) *Stomatitis Vesiculosa* is described as occurring on the gums and interdental spaces of the upper jaw. The small vesicles are soon replaced by a greyish, thin, flat deposit; there is no fever and it is not contagious. The symptoms are mild.

(5) *Traumatic Stomatitis* and injuries to the cheeks from sharp objects in the food, grain awns, &c., may leave scars similar to those of healed cases of mild foot-and-mouth disease. Traumatic scars are usually irregular, linear, and deep.

(6) Foot rot, fouls, suppurative cellulitis in cattle and sheep sometimes extends to all the animals in the herd, and suggests the nature of an infection. There is also a contagious enzootic foot rot in sheep. In foot-and-mouth disease the feet are usually all attacked at the same time and the infection spreads rapidly from animal to animal, the lesions are more superficial (blisters), and the recovery more prompt.—*The Cornell Veterinarian.*

General Clinicals.

SUPPURATION FOLLOWING LYMPHANGITIS IN THE HIND LIMB OF THE HORSE.

By J. F. D. TUTT, M.R.C.V.S., F.R.M.S.

Winchester.

This case seems to be so extraordinary that I considered that it would be well worth recording, as it is typical of not a few that have come under my notice recently.

Usual History of the Cases.

In most cases the usual history has been an influenza cold or "catarrh," followed by lymphangitis, which, when gone, or practically gone, is followed by numbers of suppurating "buds" that are usually slow in healing. The limb that has been involved in practically every case has been the off hind. Sometimes the suppuration has started high up inside the thigh, at other times it has started round the fetlock (Case 2, p. 224, of the May issue of this Journal is an example).

Reaction to the mallein test has been negative in each case. Microscopically, cocci have been found; no cryptococci have been found, thus excluding the possibility of the cases being those of epizootic lymphangitis.

Nature of the Discharge.—In some cases the pus has been of the "laudable" or creamy type; in other cases it has been sanious and oily. Before the introduction of the mallein test the case about to be described, like others, would no doubt have been diagnosed as glanders and the animal destroyed. In some cases no illness has occurred until the suppurating buds have appeared (as in Case 3, p. 225, May issue of this Journal, and in the case recorded in the April issue by me). In Case 2 (p. 224, May issue of this Journal), the only symptom previous to the appearance of the "buds" was lameness of an obscure nature.

Duration.—Usually prolonged, with marked loss of condition on the part of the patient.

Subject.—Brown cart mare.

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History.—I first saw this case on January 7 last. The symptoms then present were those of the usual type seen in ordinary lymphangitis," or "big leg," the enlargement involving the off hind limb.

I prescribed potassium iodide in 2 dr. doses three times a day, hand rubbing the limb, bran mashes, &c., and had the animal turned into a loose box. Later the usual diuretic balls of resin and potassium nitrate were given twice a day. No diminution in the size of the limb was noticed, and on January 13 three "buds" discharging pus and blood appeared in a row round the fetlock. Another one then appeared in the hollow of the heel, then two or three in the bend of the hock, then one inside the thigh, and so on, until the limb was covered with "buds" discharging pus and blood, and pus (laudable) only in some places. Microscopically, cocci could be seen; mallein tests (subcutaneous and ophthalmic) were both negative.

Treatment after Appearance of Suppuration.

I first tried the effect of a stock vaccine of a combined staphylococcus and streptococcus nature. The only effect appeared to be an increase in the discharge. The doses, &c., given were:—

January 14.—100,000,000 organisms.
January 18.—300,000,000 ,,
January 22.—500,000,000 ,,

I then determined to try the effect of an autogenous vaccine, and took a swab from a recent "bud" and sent it to Professor Annett, who reported as follows:—

"Cultivations made from the material have yielded cultures of the following organisms:—

(1) *Bacillus pyocyaneus.*
(2) *Staphylococcus albus.*
(3) A diplococcus.

From these an autogenous vaccine has been prepared. Each phial sent contains 1 c.c., and has 8,000,000,000 organisms in all, made up of 2,000,000,000 of the first-named organism and 3,000,000,000 of the other organisms.

Record and Observations.

Vaccine.

January 28.—First inoculation, $\frac{1}{3}$ c.c.

February 1.—Second inoculation, 1 c.c., or 8,000,000,000 organisms.

February 6 and 9.—Similar to that on February 1.
February 12.—24,000,000,000 organisms.
,, 16.—24,000,000,000 organisms.
,, 20.—24,000,000,000 organisms.
,, 24.—24,000,000,000 organisms.
March 2.—24,000,000,000 organisms.
,, 11.—48,000,000,000 organisms.
,, 16.—64,000,000,000 organisms.
,, 20.—64,000,000,000 organisms.
,, 26.—64,000,000,000 organisms.

Fibrolysin.

March 11.—10 c.c. fibrolysin.
,, 13.—10 c.c. fibrolysin.
,, 16.—10 c.c. fibrolysin.
,, 18.—10 c.c. fibrolysin
,, 20.—10 c.c. fibrolysin.
,, 23.—10 c.c. fibrolysin.
,, 26.—10 c.c. fibrolysin.

On February 3 the mare got down and had to be put in slings.

A noticeable alteration in the amount of the discharge was observed about the middle of February, and ceased at the beginning of March.

Dense fibrous masses resembling papillomata now made their appearance about the fetlock, and increased in size up to that of a human fist. Fibrolysin was therefore injected into the gluteal muscles of the affected limb, and a marked diminution was observed in their size; the mare also gained in condition, and was let out of slings on March 30. The enlargements were ligatured on April 1, and the mare was discharged on April 27.

The mare was a valuable one, and the eventual successful recovery was very gratifying, although naturally prolonged, owing to the severity of the attack, &c.

XUM

A CASE OF ANTHRAX.*

By J. A. BENNETT, M.B., B.S.Durh.

Captain, Royal Army Medical Corps.

An account of anthrax in man being comparatively uncommon, the following notes may be of interest to readers of The Veterinary Journal:—

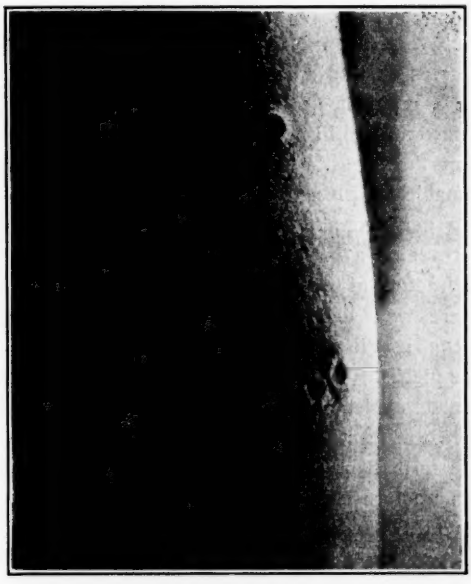
History.—A driver in the Royal Field Artillery, aged 30, was admitted to Connaught Hospital, Aldershot, with three pustules on his forearm. For about six months the patient had been working amongst horses and in stables, but had no recollection of having had any abrasions or the like. On March 3 he noticed three spots on his forearm, two close together 2 in. below the end of the elbow, and the other 2 in. nearer the wrist. He felt "out of sorts," ascribing his condition to a cold, and it was on account of the latter that he reported himself sick on the 4th. The pustules had then the following appearance: small ulcers, ¼ in. in diameter (those shown in the illustration are slightly smaller than natural size), with elevated edges, the latter being due to small vesicles having coalesced and formed a complete ring surrounding a dry, depressed centre of a blackish-purple colour. Immediately outside this ring was an angry red area of about ¼ in., on which were minute discrete vesicles irregularly concentrically placed. The whole skin of the forearm was indurated and inflamed. There was no febrile or constitutional disturbance of note.

Treatment.—After examination of many cover-glass preparations stained with watery methylene blue made from the pustules no *Bacillus anthracis* were found, but as the appearance of the pustules was so suggestive of anthrax the patient was given an anæsthetic and the pustules were excised, including the vesiculated area. The raw surface left was cauterized with pure carbolic. Readily assimilated nutritious fluid nourishment and stimulants were given.

Bacteriological Examination.—Agar tubes and plates were inoculated with serous fluid aspirated from the pustules after excision, twenty-four hours' incubation showing a rich growth of staphylococcus albus, which obscured any other growths which

* Reproduced by kind permission of *The Lancet.*

may have been present; incubation was continued for three days. A flask of normal saline inoculated with some of the dense growth by means of a glass rod, and the saline emulsion was then heated at 85° C. for thirty minutes and stroke cultures made on agar plates from the latter. Twenty-four hours' incubation of the agar plates showed numerous colonies of *B. anthracis*. To the naked eye and low-power examination the colonies were quite



Pustules on the forearm in a case of anthrax

characteristic. Examination under $\frac{1}{12}$th in. oil immersion revealed the characteristic *B. anthracis*.

Convalescence has been progressive and the man has been discharged from hospital feeling very fit.

I am indebted to Temporary Lieutenant R. Francis Jones for carrying out the bacteriological work, and to Temporary Lieutenant D. J. Legge for the surgical work.—*The Lancet.*

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SOME FURTHER NOTES INCIDENTAL TO PARTURITION

By RUSTICUS.

(*Continued from p.* 224.)

I.—On April 8, 1910, I was called to an eight-year-old Shire mare which could not foal. The presentation was anterior with considerable lateral deviation of the head, and one hind leg also presented with the fore feet.

Embryotomy was performed and the mare apparently made an excellent recovery. On May 3 she did a little light work. On May 4 she was carting a small load of roots to the sheep; she stopped on a gradient, the farm lad struck her with a whip, she started forward and, in his words, "stuck her toes in the ground and then stood on three legs." I was called again to the mare on May 6. She was unable to place any weight on the off hind limb, was sweating, off her feed, and on the point of collapse. Examination *per rectum* revealed a large, very painful swelling on the right wall. Diagnosis: fracture of the pelvis.

The mare was destroyed: *post-mortem* examination showed fracture of the right innominate bone through the acetabulum, which was in three pieces. The bones of the pelvis were boiled, but I was unable to detect evidence of previous fracture of the right innominate bone. Were the fractures caused by muscular contraction at the moment the farm hand struck the mare with the whip, or did an unsuspected fracture exist and excessive muscular contraction cause a displacement which had been deferred?

II.—One has been generally led to believe that the bovine subjects of milk fever are deep milkers, easy calvers, and owned by good keepers; occasionally one becomes cynical, and experience teaches one that the exceptions to the rule are not so rare as we previously imagined.

These notes on a case are an illustration of an exception which occurred in our practice.

At 7 p.m. on June 5, 1913, we were called to a parturient cow in poor condition from which the owner, a small dairy farmer, and his man could not extract the calf.

On our arrival we found the man had managed to remove a fairly large sized calf in the breech position with flexed hocks which appeared ankylosed.

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The cow appeared slightly exhausted, but otherwise normal. Twenty-four hours afterwards we were requested to remove the after-birth because the cow was uneasy and the weather very hot; we did so, irrigated the uterus with a solution of lysol, and inserted a salol pessary. We left the cow quite comfortable. Thirty-six hours after she had been delivered the owner asked us to attend again as the cow had a severe attack of milk fever; treatment was on the usual lines, and recovery took place in eight hours.

My assistant up to that time had not heard of a case of bovine milk fever subsequent to dystocia.

MULTIPLICITY OF CASES.

By C. A. JOHNS, D.V.M.(1910).

On October 10, 1914, late in the afternoon and after a rainstorm, a farmer called me to see eighteen of his cows which had become bloated on alfalfa pasture. On arrival at the farm ten minutes later I found two of the animals dead and the rest extremely bloated. One cow was in a very serious condition, down on the ground and apparently making her last struggle.

My treatment was as follows: The cow which was down and all but dead I operated by making with a scalpel an incision 4 to 5 in. long through the flank and rumen. Gas, alfalfa, water, &c., the contents of the rumen, fairly boiled through the opening. This ingesta was so hot that the hand could hardly be held in it. The other fifteen cows were operated by trocaring (one to five times). I also administered 1 dr. of salicylic acid to each cow. This was followed, after the bloating had subsided, by giving to each cow 2 lb. of sulphate of magnesia.

Results.—After about three hours the incision in the rumen of the cow operated with the scalpel was cleansed and sutured with catgut. The flank muscles were sutured with two rows of catgut and the skin with silk. All of the animals recovered without trouble except one case, which showed symptoms of impaction for forty-eight hours. These cows had been on alfalfa pasture for a few days, but until the rain came none of them developed any symptoms of disease.—*Veterinary Alumni Quarterly.*

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CLINICAL CASES (MOSTLY UNSATISFACTORY).

By T. I. ALEXANDER, M.R.C.V.S.
Kinsale.

(*Continued from p.* 222.)

Case 3.—Called to a cow. Message received from small boy was that "Her insides were coming out." Inquiry as to what they required done elicited the mild request, "We want you to fix her."

On arrival I found her lying in a ditch with her entire womb everted and covered with filth. She, it appears, was due to calve and had lain down on this steep declivity with a drop into the ditch. Her head was facing up hill, and when the calf, which I understand was a big one, made its appearance three or four men made a grab for it. In this part of the country they do not believe in letting go until something breaks; the result was that they brought the womb (no doubt assisted by the weight of bowels behind and the expulsive efforts of the cow) out upon the grass. Examination, after remedying the position of the cow so that her head was facing down hill, revealed two ruptures in the everted womb, one about 3 in. and the other about 4 in. long, through which the intestines could be seen. As night was coming on, the cow having lost a lot of blood, and not being in an experimental frame of mind, I ordered her destruction. I believe she died before it could be carried out. *Moral:* Never calve a cow down a steep hill.

TUMOURS.

By T. I. ALEXANDER, M.R.C.V.S.
Kinsale.

I have been much struck by the comparatively enormous amount of malignant growths met with in the domesticated animals. I would be interested to know if the experiences of other veterinary surgeons are similar, and in this connection the following notes may be of interest:—

Case 1.—A horse losing condition, employed drawing timber and not belonging to this district, was brought to me with a request that I should "fatten him a little more." The foreman told me that another "vet" had rasped his teeth about a month before. Just as

I was preparing to do something of a similar nature, he asked me to look at a sore *under* the tongue. On examination the "sore" revealed itself as an apparently gradual destruction of tissue, situated at "frænum linguæ" in extent about 4 in. by 1½ in., varying in depth. It had a malignant aspect, but there appeared to be an absence of any odour from the breath. I removed a portion of growth and forwarded it to Professor Mettam, who kindly informed me it was carcinoma. The horse was afterwards destroyed.

Case 2.—Called to see a cow with "a sore eye." On arrival I found that instead of an eye, which must have disappeared months before, its place had been taken by a large and truculent looking tumour. Owner informed me it seemed to be getting bigger.

Professor Mettam also examined portion of this for me and pronounced it carcinoma. On my informing the owner that it was malignant, and that nothing could be done except to slaughter the animal, he became very morose and appeared for some occult reason to hold me responsible for the appearance of the tumour. He revenged himself by not paying my fee for twelve months until threatened with legal proceedings.

Case 3.—A Great Dane dog which had been castrated a year before was brought for treatment. He had a tumour, about the size of a small hen's egg, situated midway on the right side of the neck and freely movable with the skin, and a slightly smaller tumour on the right side of prepuce and freely movable; there were several smaller tumours on the back not so freely movable, and one on the summit of the shoulders between the upper extremities of the scapulæ.

As owner did not wish any blood spilled I had to prescribe first. I gave liq. arsenicalis in 10 minim doses daily. After a week I noted as peculiar that *some* of the tumours had decreased noticeably in size, but others, which were not so pronounced at previous examination, had become enlarged. I decided to remove the one on the neck and did so with a local anæsthetic of cocaine hydrochlor. It was very adherent to the skin, and the next day the operation wound and tissues around had taken on a very unhealthy appearance Professor Mettam informed me it was round-celled sarcoma, and the dog was chloroformed with the owner's consent.

Case 4.—A mare, whose owner said when requisitioning my services that "she had a lump on her tail." On arrival I found an old mare in poor condition and covered with "lumps" all over her body (I gave up when I had counted fifty). My client informed me

she had a "lump" on her tail two years before, but they got rid of it by docking the tail above. Growing on the end of her few remaining coccygeal vertebræ was the "champion lump," to which my client drew my particular attention. It was a large semi-solid suppurating tumour, and I came to the conclusion that all these growths were malignant and ordered him to destroy her; but true to the ritual of veterinary clients, he did not do so, but allowed her to die, which she eventually did from a "carcinomatous pneumonia," as I have no doubt that she must have been riddled internally with hundreds of tumours. Unfortunately, I was unable to make a *post-mortem*, which would have been interesting.

Carcinoma of a cat's eye, sarcoma of a cow's vagina, and carcinoma of a bullock's shoulder are other cases fresh in my memory.

Why should malignant growths be so common in animals in the country, living under practically natural conditions?

The decree concerning "the sins of the fathers" should not apply in the animal world.

Canine Clinical.

TWO DOG CASES.

By HORACE L. ROBERTS, F.R.C.V.S.
Ipswich.

In the April number of The Veterinary Journal there are recorded by Mr. G. Mayall two cases of toxæmic constipation in dogs, or canine typhus, and the treatment by salt-water rectal injections and medicinal liquid paraffin. The following notes of a trial of the "new" treatment may be of interest to your readers:—

(1) On April 27 I was requested to see an Aberdeen terrier dog, aged 10 months. He was dull and listless, breath fœtid. The animal had not eaten anything for four days, nor had he passed any fæces during the same period.

I took him home with me, and gave him copious salt-water injections until he vomited a clear fluid. An hour afterwards he was given a teaspoonful of medicinal liquid paraffin, which was repeated in the evening.

On the 28th the dog was brighter, breath less offensive, but no fæces had been voided.

Paraffin was given in doses of one teaspoonful three times during this day. At 7 p.m. the dog was considerably better and drank some warm milk.

On the morning of the 29th we found he had passed some dark-coloured fæces of a pasty consistence. His appetite for fluids was now good. He returned home on the 30th quite convalescent. A small quantity of pethdar (a patent food for dogs) brought back his usual liveliness.

(2) On May 11 I was called to an eleven-year-old working terrier, which is now a house dog. He had been ill with a "stoppage" for two days. The owner, who is a successful dog-breeder, had given him several dessertspoonfuls of salad oil and two Dover's powders, but without any apparent result.

The usual symptoms of canine typhus were present *plus* a considerable amount of gastric tympany.

The treatment was salt-water enemata and one dessertspoonful of medicinal liquid paraffin three times a day.

On the 12th the animal was brighter and drank a little bovril and tea and milk.

On the morning of the 13th he had not passed any fæces. Above treatment continued.

During the night of the 13th he voided a large quantity of dark-coloured fæces of semi-liquid consistence. On the 14th the dog's appetite was maintained, but his general condition, on account of cardiac debility, was not quite satisfactory. I prescribed tr. strophanthus twice daily. The old dog made an excellent recovery. In this case salad oil and Dover's powders had been given, but the dog was rapidly becoming worse. The immediate beneficial effect of the salt-water enema was apparent to the owner and his kennelman, and after six doses of paraffin the dog had passed the crisis.

What is the effect of the internal administration of paraffin on the respiratory apparatus? In both these cases I noticed, even after the most careful administration, irritation of the laryngeal and treacheal mucous membranes which persisted throughout the course of treatment. Have any of your readers noticed a similar phenomenon?

EXTRACTS FROM A DIARY.

From Day of Mobilization till Last Day of the Retirement.

August 4, 1914.—Orders to mobilize.

August 5, 1914.—First day of mobilization. I joined my brigade.

August 7, 8, 9, 1914.—Reservists all joined. Remounts arrived.

August 10, 1914.—Our first casualty, a sergeant being killed, kicked in head by a remount.

August 13, 1914.—Second casualty; one of our majors thrown from his horse and dislocated his shoulder.

August 14, 15, 16, 1914.—Preparing for move.

August 17, 1914.—Batteries started entraining.

August 18, 1914.—Headquarter Staff, to which I was attached, marched to the station at 10 a.m. Great excitement through the town and at the station. All the guns and wagons were run on to trucks in no time, and the horses were very little trouble.

I helped box them, being only too glad of something to do. This was finished by 12 o'clock, and the doctor and I went to have a last drink for luck. Returning to the train about 12.15 we got into our carriage and found the Colonel had put in two luncheon baskets, a flask of whisky, and some soda for us. After sitting there for five minutes with crowds of men and weeping women just outside our carriage, the doctor and I decided to have another parting drink. On the way I saw the inspector and told him not to let the train go without us; five minutes later he came rushing into the refreshment room saying they were waiting for us, so we ran like hares through the crowd of people down the platform into our carriage under the eye (with the eye-glass) of our Colonel.

The journey to Southampton was uneventful; it was about 3.30 when we arrived there, running straight on to the docks; such a crowd—men, horses, guns, wagons, forage, and a hundred and one things that go to make up an army, all over the place. The guns and wagons took a long time to get on board as each one had to be slung on separately; the horses mostly walked on board up long ramps, but some were very troublesome and took a long time.

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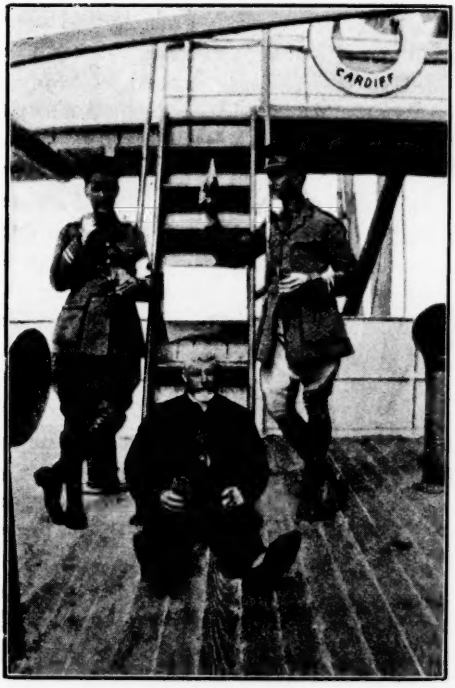

The medical officer, the veterinary officer, and the skipper. August, 1914.

A ten minutes' halt on the retreat from Mons. September 1, 1914.

The name of our ship was the *Welshman*. Horse standings were fitted up all over the place, and there was no accommodation on the wretched ship for officers or men. Crowds of medical people were on board, and it was extremely difficult to find a square yard of deck to sit on; the little bit of top deck, the only part available on the old 'bus, was crowded. I was looking forward to a most miserable cold and uncomfortable night, as we were not due to sail until 10 p.m., and not due to arrive until 7 next morning. Nobody had the slightest idea where we were going to, not even the captain of the ship.

Luck, however, came my way, for the Colonel came to me and said he had put me in charge of men and wagons on another boat. I went off to find the captain, hoping to find something more comfortable, but knowing it could not be worse. This old tub was blessed with the name of *Achlibster*. The captain was one of the right old sort and made me very welcome, giving me a nice cabin to myself, leading out of which was the mess room. He gave me tea and a fat cigar, after which I felt very much better. I thought it best to keep this to myself, but I couldn't help thinking how I had scored by the change—no cold, hard iron deck, no nasty cold breezes to disturb my slumber. Later on I found the doctor wandering about, so I told him to go and get permission to travel with me. This he did, and we had a right royal passage, thanks to the captain and a case of champagne put on board by the owners for the use of officers. (We "did in" six bottles.)

Our old bus left first (before the *Welshman*), at 8.30 p.m., when the captain had his sailing orders given him. It was very interesting passing through all the searchlights from the forts at Portsmouth. We had dinner soon after starting, having a bottle each, then to bed, with a last sleepy thought of the cold iron deck of the *Welshman*.

August 19, 1914.—Up at 7 a.m. We saw a number of our cruisers, but nothing else. It was quite a nice morning, very quiet. At 12.30 we dropped anchor off Boulogne, with the knowledge we should not land until 7 that evening owing to the tide. For lunch we had tripe and onions, but I could not get on at all with it—it was *nasty;* but I quite enjoyed the cake, a bottle of bubbly, and a fat cigar. At 2 o'clock I was back in bed fast asleep, but not undressed. At 4 o'clock the steward woke me

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up, saying a staff officer was alongside in a pinnace wanting me, so I tumbled off the bed on to the deck to see the little pinnace yards and yards below; it looked more like miles when I found I had got to go down the pilot's ladder over the side of the old *Achlibster*, outside a bottle of pop and half asleep.

This daring feat achieved, we steamed off to Boulogne Harbour, and had to land by ascending another wretched ladder up the side of the pier. I found the *Welshman* was already in, had passed us in the night and saved the morning tide. All our fellows were waiting about the docks for the old *Achlibster* to come in, as a lot of their wagons were on board her.

I found one of the horses had broken its leg while coming off the ship; this I wanted to shoot there and then, but was not allowed to do so, as no money would be paid for it unless taken and slaughtered at the abattoir, so a float was sent for and the horse taken away, slaughtered and dressed, and used for human food, the sum of £5 being paid for the carcase.

I waited in the docks until 8 o'clock, when the *Achlibster* arrived. I went on board and had a parting bottle with the captain. It took us until 11.30 p.m. to unload her, and about midnight we marched off through the slippery streets of Boulogne to our camping ground about four miles out. It was pitch dark, and consequently our pace was deadly slow; no one knew the way, but we arrived about 2 o'clock without any mishaps. It was quite a business unharnessing and picketing the horses, as we only had two candle-lanterns between us. It must have been about 3 a.m. when we lay down on the hard old ground for the first time with nothing over us. I could not sleep, it was cold and terribly hard.

August 20, 1914.—Up at 5 o'clock. I found I had been lying on a horse-shoe; in fact, it had almost been my pillow, so I picked it up and am keeping it for luck. I went round all the horses in the morning (we had 722); nothing serious the matter. In the afternoon went into Boulogne and had something to eat at the Bristol; my Colonel and Adjutant were also there, taking the opportunity of the last good dinner for a while. I left with them at 9 o'clock in a dirty old four-wheeler. About halfway back to camp we passed a number of G.S. wagons with heavy draught horses of the A.S.C. Soon after passing we heard a fearful rattle behind us, but could see nothing. We knew at once that it could

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be nothing else than runaway horses, so pulling well into the left bank we jumped out; as we did so one of these pair-horse wagons passed us like a flash, missing our old cab by inches. This started another which happened to be just in front of us, the two of them going like blazes, and, of course, it happened on a steep down-hill bit of the road. One ended up by hitting a telegraph post, a horse going either side of it, smashing everything. The other ended up by going over a 12 ft. bank among thick bushes, trees, and wire; the horses naturally got hung up in the wire, as we had not wire cutters handy. I do not think from what I saw of the wagons by candle-light that they would be worth taking away; the horses got off lightly, but the drivers were knocked about a good bit.

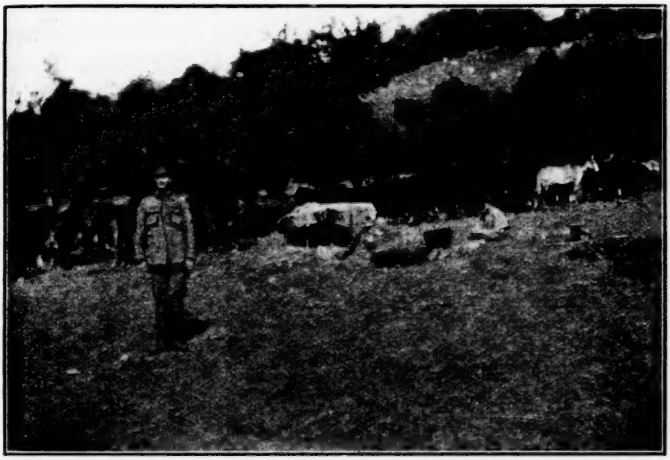
Jack Johnson had a narrow escape that night of being knocked out. He came along the road in a little motor with his wife from the opposite direction certainly not more than two or three minutes after the wagons had stopped. As we got to camp we met our 1st Battery moving out to entrain.

August 21, 1914.—Up at 5 o'clock, we struck camp and marched to Boulogne. At 8.30 we started entraining; this took till 11.30, as there was only one ramp for the horses. We then had a good breakfast, and left Boulogne just after 12. All along the line there was tremendous excitement, people giving the men all sorts of souvenirs at every little station we passed through. One of our fellows evidently liked the look of the French people, for he fell out of the train; we were not going very fast, so do not expect he was hurt much; we did not hear of him again.

It was 11 p.m. when we arrived at our journey's end at a place called ——. Detraining, watering, feeding, and picketing took us till 2.30, when we lay down in the horse lines for a short sleep; the ground was awfully wet and it was raining, but we slept well until 4 o'clock.

August 22, 1914.—Up at 4 o'clock, marching out at 5 on a long, hot track through Landrecies to Leval, where we arrived after dark, about 9 p.m. We had some bully beef and chocolate during the day, but nothing to drink, so tea and bacon was great at 9.30 p.m. After this I went round all the horses, finishing about 11 o'clock tired out. I slept in a little farmhouse, but did not undress, as orders had come in that we might have to move at a moment's notice.

XUM



Horses under shelter on the Aisne. September, 1914.

A mobile veterinary section tracking back to the railroad with sick horses after the first advance. September 8, 1914.

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August 23, 1914.—At 2 am. orders came to hook in and move off at once. That morning I shall never forget, it was most striking. I stayed behind in camp, until the three batteries had all moved out, to destroy a horse with a broken leg. It was quite dark as I rode out of the camp into the narrow country road with no sound save the rumble of the gun carriages and the clatter of the horses' hoofs going away in the distance; they went out at the trot. It must have been about 4 o'clock when we halted. It was just getting light, and away in front of us was the most wonderful deep red sky I have ever seen; it looked as though a tremendous battle was in progress and everything was on fire. I think as I sat there on my horse in the dim light, with the outline of men, horses, and guns around me, this wonderful red sky away some miles ahead over Mons, and the distant rumble of big guns, I realized for the first time we were on active service, and for the first time in my life I heard the words come down the line "Prepare for action."

We crossed the frontier near —— and advanced some miles, when we had to reverse and retire to a small village, where we fed the horses; some 2,000 Infantry came by us here. I turned into a lovely orchard. My servant got me some water and I had a wash and a shave; he also brought me a bucketful of beautiful pears. It was a glorious day, and I was really enjoying myself; but it did not last long—orders came up to hook in, all baggage and transport wagons were to go back, and we trotted out three miles into action. It was really rather amusing, the things that dropped off the men and ammunition wagons; there were mess-tins, water-bottles, whips, tins of biscuits (25 lb.), bags of oats, trusses of hay; but there was no stopping. Our big guns (60 pounders) were firing over us as we went and the German shells were bursting along a line of trees marking a road on our front.

We came into action in a cornfield; the corn had been cut and was standing in cocks. We blazed away from here till about 5.30 p.m., no one being touched. The noise was great. I made myself very comfortable in the corn with the doctor, and we both enjoyed a raw turnip and a cigarette. Moving forward from here we next came into action on the other side of Harveng with two batteries, while the third battery went off with the Infantry Brigade and came into action at Givry, and had rather a rotten

German prisoners captured on the Marne. September 10, 1914.

Result of an 8½-inch "Jack Johnson" in the waggon line. September 13, 1914.

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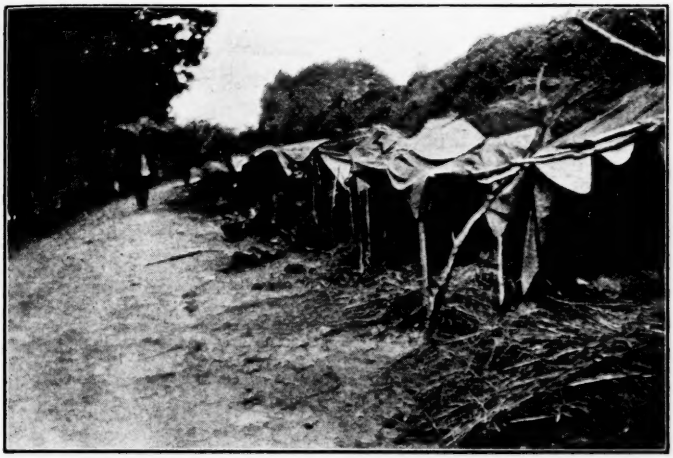
time. We went on firing until dark, and a fair number of wounded men were brought into the Harveng Hospital.

It was about 9.30 when we brought the guns down through Harveng and bivouacked in a field close to the village. The ammunition column stayed in the village square, all the horses standing harnessed in the wagons, men were lying about all over the place, in roads, on wagons, some practically under the horses, tired out. I had just finished my walk round the horses, just to see they were as comfortable as possible, it was just after 11 o'clock, and I was wondering whether I should lie down, when an orderly came running down to me (he saw my lantern), saying the Brigade-Major wanted an officer at once at his office. On my arrival I found a very worried-looking little man, with two telephone operators at the table, writing down messages. The office was the back parlour of a dirty little deserted café. He told me to go at once and order the brigade to the cross roads, about two miles walk, as quickly as possible. He told me all our Infantry had been withdrawn from the front. I went down first to the Major with the ammunition column and told him. He was rather amusing; he said he was too tired to budge, but when I told him there was no Infantry between his little crowd and the Germans he woke up and got a move on. I then got on to the batteries, and we arrived at the cross roads at 12.15, where we stopped until 3 a.m.; the baggage wagons had been sent away, so we had no food and no blankets, and it was a cold night too. All the horses stood in the guns, the men lying in the road with them.

August 24, 1914.—Moving off in the dark we continued marching back and came into action at 6 o'clock, the Germans being close on our heels; we were doing rear-guard, shells bursting incessantly all that day; but none quite reached us, they were falling short. An aeroplane going over the German position had a very rough time. I counted thirty-five shrapnel in the air round about him at the same time; he never altered his course, but went straight on as though nothing was happening below. We managed somehow to keep them off, and continued our retirement through the afternoon. About 7 p.m. we turned into a field of standing wheat, lighted a small fire and made some bully stew, which we ate out of cups with forks—rather a difficult task, but it was thoroughly enjoyed. Lying down among the standing



Our dug-outs on the Aisne. September 13-20, 1914.

ON THE AISNE.

Eighty men of the King's Royal Rifles went into this barn. Seventeen killed, forty wounded, by one "Jack Johnson." September 15, 1914.

corn we were soon asleep, having been on the move for sixty hours out of the past seventy-two.

August 25, 1914.—Leaving again before light we made our way through a large, thickly wooded estate. It was just getting light when we came to the end of it, and found two large iron gates locked in front of us. There was no other way out, so the gates had to be broken down. This was no easy matter, but by the aid of a crowbar and drag ropes the gate gave out in about twenty minutes. There was no fighting that morning, we simply marched on and on, or rather back and back, until 4 o'clock in the afternoon. When arriving at the village of Landrecies we turned into a nice meadow for a rest and food. The baggage wagons met us here. The horses were unhooked, though not unharnessed; cooking pots got out; fires alight; we quite thought a few hours' rest were in store, but it was not to be. Up came a report before we had been there an hour that German Cavalry were in the village not 300 yards away.

Talk about "family coach," I shall never forget that evening; it started to scream with rain, just to make things more home-like. A brigade of guns in a meadow surrounded by a high hedge cannot do much, and we had no Infantry with us. The only thing to do was to clear out as quickly as possible; we just hooked in the horses and out we went, trotting up a narrow lane to the left, leaving in the field sides of beef, corn, nosebags, boxes of horse-shoes, nails, &c. Some of the stuff had been hastily thrown on to the wagons as we left, but this mostly fell off in the lane as we trotted on in the pouring rain. One could see nothing, as there were high hedges each side of us, and I do not think anyone knew where we were going, and so we went for about a couple of miles, the heavy horses in the baggage wagons trotting like hackneys. Suddenly an order came through that we were going the wrong way. Oh, what a mix up in that little country lane! The guns had to be reversed, which took some time; then back we came, even faster than we went, fully expecting every moment to hear the rattle of the German rifles. On arriving back at the village we were ordered into another field. At the time we were annoyed at not being allowed into the one we had left an hour before and where a lot of our stuff was lying; but, as it turned out later in the evening, it was a very good thing for us that we were not allowed to. We unhooked the

horses again, and had to be content with cold bully, no fires being allowed, not even lanterns. It was soon quite dark, but luckily the rain had stopped, though most of us were more or less wet through. There was nothing to do but just sit on the wet ground and wait for something to happen. We all knew something must happen before long, as the Germans were close on us.

It was just on 10 o'clock, everything had been very quiet up till then, that the first shell came over us. It was shrapnel, the bullets whistling through the trees, taking off twigs and leaves, over our heads. They kept up this shelling until 1 o'clock. They were really shelling the field we had been in first; this must have been given to them by a spy when we were there earlier in the evening. They had the range of this field well; the sides of beef, bags of oats, &c., must have had a rotten time, and so should we have had but for the lucky move; as it was we only lost two men killed and three horses hit. By this time the —— Brigade had arrived, had barricaded the streets and a small bridge at the end of the village, and from here they were sending volleys into the Germans. The noise was terrific; between the volleys and the rattle of the Maxims one could hear the Germans cheering as they charged and threw themselves against our infantry. A gun was brought up against our fellows; every round—they were firing shrapnel—picked off someone. We had no guns in action. The German gun had got the range of our barricade and it was pouring round after round into us, each burst accounting for anything up to a dozen men. The position was very serious, and a message was sent to our Colonel to send down a gun at once. Lieutenant —— was put in charge of it; he took up his position just behind the barricade. It was quite dark; he waited for the flash of the German gun and laid his own gun on that. At the third round, with a lyddite shell, he got a direct hit; up went the gun and also the cheers of our men. It was good shooting, and made a lot of difference to that night's work. Every window in the village was broken, the whole place was like a slaughter-house, over 800 Germans were lying dead and a number of our fellows too. It was a deadly fierce attack this; from 10 p.m. till 1 a.m. the fighting was desperate and the noise deafening, but we kept them off; we all realized afterwards what a near thing it was, more so than at the time.

August 26, 1914.—At 3 a.m. we left the village and brought the gun into action just outside, to cover the retirement of the Infantry. By the greatest of luck the Germans did not press on that morning, they had taken a good knock, and so we got out of the tightest corner we had been in up to date. We had to leave behind many wounded, and some of our doctors stayed with them, all of whom were taken prisoners.

At midday we arrived at Etreux. The guns were dug in right across a big field at the entrance to the town, and here we waited for the German advance, which did not come. The only excitement during the afternoon was the dropping of a bomb from an aeroplane on our position; it did no damage. About half an hour afterwards it came back flying much lower. We had not fired at him the first time over, so he got more daring; this cost two flying men their lives, as we brought them down by rifle fire.

At 6 o'clock it started to rain. It was a night! The rain simply fell down and we did not have a morsel to eat; we lay down near the guns as soon as it was dark and tried to sleep—rotten.

August 27, 1914.—Up just after 4 o'clock, absolutely wet through. We started on our march towards Guise. I walked all the morning and got gradually dry; it was a beautiful day. In the afternoon we arrived at Riremont and bivouacked. After tea a report came up that the Germans were advancing on us from St. Quentin. We thought it was going to be another Landrecies, and we sent two batteries out into action; but it was a fairly peaceful night; most of us slept in a field of beet-root.

August 28, 1914.—Off at daybreak. We passed a squadron of the Scots Greys, who looked very businesslike We tracked the whole of that day; seemed to have shaken off our pursuers for a little while. It was fearfully hot; we were all glad of a rest at Servais, a very pretty little village. We here took over two ammunition carts of the Essex Regiment, who had been cut up. The subaltern who brought them in told me that he, the Quartermaster, and a few men were all that could be found of the regiment. They got cut up on leaving their bivouac in the early morning. They walked into an ambuscade and were annihilated with machine-gun and rifle fire. This rest was much appreciated, especially by the Infantry, who were dead beat. They had been marching by day and half the night since August 22.

My host and hostess whilst convalescent with rheumatism. October 10, 1914.

My dug-out at Ypres. October 13–November 13, 1914.

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In the afternoon four of the Scots Greys came into our camp. They and the 12th Lancers had just had a charge through some Germans; the horses' chests and the girths were spattered with blood.

August 29, 1914.—Stayed on at Servais, thoroughly enjoying the rest.

August 30, 1914.—A long hot march towards Terney, but no fighting. Starting early in the morning we bivouacked at Le Banc de Pierre, arriving there just after 5 p.m. My servant walked two miles for a loaf of bread to the next village. Nothing exciting happened here. Chickens and rabbits from a farm near by were much appreciated by the men; we had to pay 50 fr. afterwards for the wretched things.

August 31, 1914.—Marching out at 2.30 a.m., we tracked all day to Laversine through Pommiers, getting in about 5 o'clock; having been on the move since 2.30 a.m., we all appreciated a good wash in a ditch running by our bivouac. It had been a very hot day. We had managed to pick up a few bottles of wine on our way here; this was so hot we had to put the bottles into the washing ditch to cool. We had a most peaceful evening.

September 1, 1914.—Marched out at 3 a.m. through the beautiful forest of Villers-Cotterets. The Germans had caught up and were close behind us again. We were fighting rear-guard actions all day, the —— Brigade again having a rotten time. On reaching the village of Cuvergnon we came into action. Guns were all dug in. It was a bad afternoon, lots of firing going on over the forest we had just passed through. A little farm at the entrance of the village was barricaded by the Engineers. Here we sat tight and waited until 2 a.m., expecting any minute an attack on the village.

September 2, 1914.—We marched out at 2 a.m., having been up all night, on a long march to Meaux. We bivouacked in a suburb of the town. A good-size canal ran along the top of our camp; I never saw more men bathing at once before, although we did not arrive in until late in the afternoon and had been marching since 2 a.m. It was the first opportunity of a bath, and although tired out the chance was too good to be missed. A number of French troops passed us here; these were the first French I had seen at all.

September 3, 1914.—We slept on until 4.30, my bed was most

comfortable in a potato field, and we marched out at 6 o'clock, passing again through Meaux, quite a number of horses falling on the slippery sets. The horses were showing signs of their long hours and long marches. Outside Meaux we passed over a large, well-built bridge, which was excavated and prepared for blowing up as soon as we were over. The bridge was over a river, and a large number of boats, small yachts, rowing boats, and two houseboats were alongside the bank. These were all towed out into mid-stream and sunk. They were sinking them by ripping out the bottoms with pickaxes. We bivouacked that night at Bilberteaux, beside a beautiful chateau.

September 4, 1914.—We had to retire from here in rather a hurry, the field we left being shelled very soon after we left it. We passed through some very fine orchards along the narrowest of lanes and kept going well into the night. At Mouroux we turned into a field of very long grass, it was nearly 3 ft. high, with a number of large trees; the place was pitch dark, no lights were allowed. Cold bully beef is wonderfully good fare when hungry coupled with a ration biscuit.

September 5, 1914.—Moving off before it was light we continued marching back; it was a fearfully hot day. We had a halt for two hours in the middle of the day; not a scrap of shade, the sun baked down on us. I got a go of fever and felt rotten. In the early evening we turned into a lovely old park. With 15 gr. of quinine I rolled up in three blankets and slept until 5 o'clock.

September 6, 1914.—At 5 o'clock we turned out. The Colonel had all the officers and N.C.O.'s together and explained the situation to us. He said we were going to advance, that we had finished retiring. Everyone was fearfully bucked up; we hooked in, and left this, our last bivouac of retirement, like a lot of dogs with two tails each and wagging both. We were utterly sick of this tracking back, back, back; but, of course, it had to be—but now it was over. With the exception of two nights at Servais we had been marching or in action for seventeen days and the greater part of most nights.

INSTRUCTIONS FOR A MOBILE VETERINARY SECTION.

(1) SITUATED within half a mile of the Division in order to be in direct touch with the Assistant-Director of Veterinary Services.

(2) *Collection of sick horses is as follows:—*

(*a*) The billet allotted to the Mobile Veterinary Section is published in Divisional Orders. Sick horses from units are sent if possible by men of the unit to the Mobile Veterinary Section, when they are taken over and a receipt given. If no men are available to send them a memorandum is forwarded to the Assistant-Director of Veterinary Services of the Division, informing him there are animals to collect at such and such a unit, and the men in the Section are sent to collect them.

(*b*) On the line of march *horses* of units *unable to proceed are left at farms* and other convenient places and note taken of the owner, name, address, and the date horses were left. This is forwarded to the Assistant-Director of Veterinary Services of the Division and he instructs the Mobile Veterinary Section of his Division to collect them. The collecting officer or non-commissioned officer gives the man who has been looking after the horses a note saying that the animals have been well cared for, or otherwise, and properly fed, and the man is paid so much per day (a special fixed rate of 1 fr.).

(*c*) When a certain number of cases are collected at the Veterinary Section arrangements are made with the Railway Transport Officer at railhead for horse trucks and the animals and cases are railed to the base. For each truck one man must be sent and one non-commissioned officer in charge of the party (*i.e.*, one truck: one N.C.O., one man; two trucks: one N.C.O., two men). Eight horses go to a truck, tied up, four on each side, faces inwards. Arrangements must be made by the Section for feeding and watering.

(*d*) *The Officer Commanding Base Hospital must be wired dispatch of all sick horses.*

(*e*) All minor cases, those likely to become fit in ten days to a fortnight, are treated in the Section.

(*f*) The *Section* is also *an issuing medicine depôt* for the Division.

(*g*) The men of the Section returning from the base bring back with them all medicines required by units of the Division, which are issued from the Base Veterinary Stores on indent signed by the A.D.V.S. The medicines are then issued to units by the Officer Commanding Mobile Veterinary Section on indents by the veterinary officers of the units.

(3) A Mobile Veterinary Section consists of one officer and twenty-six other ranks, but usually the strength in attached and others musters about thirty-three all told.

(4) Local labour can be obtained for the burying of horses. *A Mobile Veterinary Section is a self-contained unit*, running its own pay, clothing and forage accounts, and its own transport and section horses.

[*Official Copy. Issued with Army Orders, dated April* 1, 1915.]

FIELD SERVICE REGULATIONS, PART II.

(*Reprint*, 1914.)

40/War Office/2412.

AMENDMENT.

40/War Office/2403.

Chapter X, Section 79. *For* paragraph 4 *substitute*—

"4. Except in the circumstances mentioned in Section 26, paragraph 10, indents for animals to replace casualties in field units will be sent by commanders of units to the headquarters of the division or detached formation to which the unit belongs, and the division will send a consolidated indent to army, or cavalry corps headquarters. The remount officer attached to these headquarters will report these demands to the Inspector-General of Communications."

40/War Office/2412.

For Section 80 *substitute*—

80. *General Functions of the Veterinary Service.*

(1) The veterinary service is organized with a view of securing the efficiency of the animals of the forces in the field :—

(i) By preventing the introduction and spread of contagious disease.

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(ii) By reducing wastage amongst animals by means of prompt application of first aid.

(iii) By relieving the field army of the care of sick and inefficient animals, the presence of which hampers mobility.

(iv) By the treatment in hospitals of animals removed from the field army.

(v) By the replenishing of veterinary equipment.

80 (a). *General Organization.*

(1) To carry out the duties specified in the foregoing paragraph the chain of veterinary organization is as follows: (1) Veterinary officers with field units; (2) mobile veterinary sections; (3) veterinary hospitals; (4) veterinary convalescent depôts; (5) depôts of veterinary stores. The whole being controlled by a Director of Veterinary Services, assisted by Deputy Directors and Assistant Directors.

80 (b). *Veterinary Establishments with Units.*

(1) To every cavalry regiment, artillery brigade, infantry brigade, divisional ammunition column, and divisional train, a veterinary officer is attached, and is assisted by the farriery establishment of the unit concerned. To these officers is confided the veterinary supervision and care of animals, and it is their duty to bring to the notice of the commanders any measures necessary for the health and condition of the animals under their professional care.

(2) Each unit if provided with a proper complement of veterinary equipment.

(3) Veterinary arrangements for units unprovided with a veterinary officer are made by assistant directors of veterinary services of formations concerned.

80 (c). *Mobile Veterinary Sections.*

(1) A mobile veterinary section is allotted to each division and cavalry brigade, acting under the orders of the commander of the formation to which it belongs.

Their function is to clear from the fighting zone all sick and ineffective animals, the presence of which hampers mobility.

(2) When troops are stationary, mobile veterinary sections may be utilized for the treatment of a limited number of cases.

80 (d). *Veterinary Hospitals.*

(1) Veterinary hospitals organized for the treatment of the more serious and prolonged cases, and capable of dealing with at least

1,000 horses each, are situated at the base, advanced base, and other points on lines of communication, convenient for rail and supplies. The first or advanced hospital on the lines of communication acts as the receiving hospital from which animals are drafted to other hospitals under the orders of the Director of Veterinary Services.

(2) An advanced depôt of veterinary stores is attached to this hospital for the replenishment of veterinary equipment of units in the field army.

80 (e). *Veterinary Convalescent Depôts.*

(1) One or more veterinary convalescent depôts are established on the lines of communication, to which horses requiring rest or feeding-up, after treatment, are sent.

80 (f). *Depôts of Veterinary Stores.*

(1) Veterinary supplies of all kinds are received at the base depôt of veterinary stores, and issued from there direct to hospitals, lines of communication, and to the advanced depôt of veterinary stores, for issue to units in the field army.

80 (g). *General System of Dealing with Casualties.*

(1) The principle aimed at is to maintain units up to their fighting strength in fit horses as far as possible.

(2) Minor casualties, or those which in the opinion of veterinary officers in charge of units are amenable to speedy recovery, will be retained for treatment under regimental arrangements. The more serious cases, each bearing a label indicating the disease and the unit, will be evacuated by the mobile veterinary section of the formation to the railhead, and thence by a conducting party from the section, to the advanced or receiving veterinary hospital.

At this hospital animals will be sorted and dispatched for treatment, as required, to the other hospitals on the lines of communication.

(3) All animals, as soon as they are fit for duty, will be transferred from the veterinary hospitals and veterinary convalescent depôts to the nearest remount depôt.

(4) Animals on the strength of the veterinary hospitals which are not likely to become serviceable again will be disposed of under the orders of the I.G.C., or destroyed.

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80 (h). *Contagious Disease.*

(1) Any suspected cases of infectious or contagious diseases among animals that may occur in the theatre of operations will be at once reported, by telegraph if possible, to the nearest veterinary officer. The destruction of such animals will be carried out forthwith if its necessity is certified by a veterinary officer.

(2) All animals, including captured stock and slaughter cattle, before being utilized by the troops, will be examined by a veterinary officer as to freedom from contagious disease.

A similar examination will be held before any animal is removed from the theatre of operations.

80 (i). *Voluntary Aid.*

(1) All voluntary offers of veterinary assistance must be approved by the Army Council, and if accepted, will be controlled by the Director of Veterinary Services of the Force in the Field.

BEEF INSPECTION.

THE *Annali di Medicina Navale e Coloniale* has published a supplement on beef inspection, by Surgeon-Captain Dr. N. Ercole, of the Italian Navy. The author takes a wide view of his subject, dealing with the inspection of live cattle, of carcases, and of preserved meats. He discusses the tricks of the trade apt to mislead an examiner, and his statements concerning the daily length of march possible to a fat steer and the loss of weight of overdriven cattle will be very informing to naval officers concerned with such questions. As to tubercle, any portion of a carcase is condemned whose lymphatic glands, even one of them, is tuberculous, and that portion is denatured and destroyed; if, however, the lesion is single and of small extent, the rest of the carcase is allowed to be sold, but must first be boiled for at least an hour. The author notes that the ilio-lumbar glands, if tuberculous, and only then, give off sulphuretted hydrogen when treated with sulphuric acid.—*Lancet.*

Translation.

SODA POISONING IN THE HORSE AND COW.

By Dr. A. SALVISBERG.

Tavannes.

The literature of soda poisoning in the large domestic animals is scarce. The second edition of Fröhner's "Toxicology" contains an account by Eggeling of soda poisoning in eleven cows which died showing symptoms of enteritis, and Wöhner, in the *Munich Veterinary News*, vol. lvi, p. 471, reports a case of soda poisoning. A cow which, instead of Glauber's salts, had received several pounds of soda in water during one day became ill with severe inflammation of the mouth, pharynx, stomach, and intestine, and had to be slaughtered. I have frequently seen soda given in error for Glauber's salts. The doses were but small, and were not given for a long period of time, so that no marked symptoms of poisoning occurred. If common soda like Glauber's salts is kept in paper bags or open vessels it gives up part of its water of crystallization, effloresces, and crumbles to a fine white powder. Sodium carbonate and sodium sulphate are liable to a similar change.

Two horses from the glass works in M—— stood at the goods station behind a waggon laden with sacks of soda. They eagerly ate pieces of soda from the torn-open sacks whilst the waggoner sat having his meal. On the same day both animals showed symptoms of colic and refused food. Therapy consisted in injections of morphia and hydrochloric acid in the drinking water. Next day I found the animals in a comatose condition, interrupted by sudden onsets of colicky pains exhibited in the usual way. No food was taken; only little acidulated water had been drunk; there was profuse diarrhœa with stinking straw-coloured dung; rectal temperature, 39° and 39·3° C. The plainly evident stomatitis was shown by salivation and swelling of the lips. Suddenly the horses began to put their mouths and tongues into the water and drank large quantities, the psychic disturbances disappeared, and the animals ate some oats and linseed. The colicky pains, were, however, still frequent, and many a time very violent. Therapy

consisted in daily administration of an opium ball, whereupon ease lasted for a few hours. This condition continued almost unchanged for eight days; then the colicky pains ceased, the dung was less stinking, firm, and of normal colour. For another full week the horses were off work, as they were apparently very weak. Doubtless through the soda a corrosive gastro-enteritis had occurred. The reason why the horses had voluntarily taken the soda was probably due to the one-sided plentiful oat diet that they had been having.

A young cow seven months in calf suffered from what the owner considered to be stoppage. His book recommended linseed slime, with Glauber's salts and olive oil, but a foolish handy-man advised soda as the best remedy. The housewife—not a temperance associate—prepared the nectar. The right quantity of soda was considered to be a handful. The dose weighed afterwards really amounted to from 800 to 900 grm. The cow got it in the morning. Late in the afternoon she aborted a living, hair-covered fœtus. The after-birth did not come away. In the evening the animal commenced to groan and then to bellow, and she was slaughtered. Autopsy showed a diffuse, old peritonitis, with numerous adhesions and abscesses caused by a foreign body. With the exception of redness and swelling of the abomasum, the acute condition could not be easily differentiated from the chronic. It appears that the effect of the soda was to aggravate the chronic into an acute condition.—*Swiss Journal of Veterinary Medicine.*

G. M.

Reviews.

The Journal of the Board of Agriculture for April, 1915.—Printed by James Truscott and Son, Ltd., Suffolk Lane, E.C. Published by the Board of Agriculture and Fisheries, Whitehall Place, London, S.W. Price 4d. monthly.

This number keeps up the Journal's good reputation. It contains many timely and well-written articles instructive alike to the agriculturist and scientist.

Any new feeding-stuff that can be effectively used at present, at the same time being reasonable in price, is worthy of the consideration of rearers and feeders of stock. Mr. Charles Crowther, M.A., Ph.D., writes about "Dried Yeast as a Food for Farm Stock." He gives details of experiments conducted at the Manor Farm, Garforth (the Experimental Farm for Yorkshire), to gain experience of the qualities of dried yeast as a food-stuff. The principal conclusions come to are that dried yeast is a safe food for cows, pigs and calves; it has proved a good food for pigs, giving results markedly better than those obtained with an equal weight of wheat sharps. Dried yeast keeps well, and on mixing with other meals and water may be kept for some time without objectionable fermentation taking place.

Other useful articles are those on "Catch Crops and Home-grown Feeding-stuffs"; "Notes on Machinery and the Labour Supply"; "Technical Advice for Farmers" (a contribution showing what good work the Board is doing in furthering the interests of agricultural science, research, and education), "Danish Investigations showing how Tubercular Fowls infect Pigs." This paper indicates how the droppings of fowls suffering from tuberculosis may affect pigs, and it calls attention to the fact that the bacteria in the droppings of diseased fowls remain potent for a long period. We are glad to see this article, because in reviewing a recent leaflet of the Board on "Tuberculosis" we called attention to the omission of the mention of pigs being infected by diseased fowls. We note with pleasure that £40,000 is available for the purpose of improving the live stock of England and Wales. High-class bulls, stallions and

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boars are to be provided, and the keeping of milk records is to be encouraged financially. The small holdings movement is advancing, and the extent of the unsatisfied demand for this class of homestead was less than at any time since the Act came into operation—a gratifying feature.

The Board may congratulate itself on the excellent educational work its "Journal" is doing, and on the monthly provision of very delectable reading matter.

G. M.

Canine Medicine and Surgery. By Chas. G. Saunders, V.S., B.V.Sc., Senior Professor, Ontario Veterinary College, &c. Published by the *American Journal of Veterinary Medicine*, Evanston, Ill., U.S.A. Price 2 dollars 25 cents.

This is one of the books at present being issued as a series of works on veterinary subjects, and edited by D. M. Campbell, D.V.S. Many volumes have been written on dog ailments, and if the surgery of their complaints has received up-to-date and comprehensive treatment, the same cannot be written about the medical region. It is a tall order to include both canine medicine and surgery, as known and practised in the present day, in one volume. The author, with some noticeable exceptions, has, however, produced a pretty complete résumé of the principal medical and surgical facts in connection with the dog. As regards paralysis, the articles are neither complete nor adequate, and the subject of canine vaccine therapy is entirely omitted. Some of the digestive diseases of the dog also might have been more fully dealt with, and others ought to have been included that are not there. Canine typhus receives no mention.

In those cases where treatment is given it is on modern lines, and the experience of the author enables him to supply some hints on therapy that are instructive and well worth reading. Part 1 of the work deals with the general diseases of the dog, and Part 2, limited to sixty-two pages, is taken up with a description of surgical operations.

There is nothing new in the book about the treatment of the various forms of mange. It is time a really up-to-date treatise was written on this subject and some extensive research conducted into the matter. We should like to know more about

the drug known as trypsogen jambul recommended for diabetes mellitis. If it produces good results there is a large field for its employment in canine practice here. We cannot find any mention of it either in the British or German pharmacopœias. The section on "Obstetrics" is timely and fills up a gap often noticeable in dog books. We like the lines: "The hands must be disinfected thoroughly, the instruments must be sterilized by *boiling* (laying them in antiseptic solution for a few minutes will not sterilize them), and the hind quarters of the patient must be washed repeatedly with an antiseptic solution." These words sum up the secret of successful operative interference in canine parturition, and no deviation from these instructions will be either modern or scientific. We agree with the author that early performance of Cæsarean section, where it is indicated, can alone produce the best results. We have seen some awful effects from prolonged fishing into the canine uterus with forceps, when Cæsarean section has been indicated almost from the first.

The little book is nicely bound and printed, and contains several useful illustrations. It is of a handy size, any subject can be referred to quickly by reason of the good index supplied, and it provides a useful every-day text-book for the veterinary practitioner and student. G. M.

THE HUNTING MEMORIAL FUND.

This Fund closes on June 30, and immediately after the General Committee will meet to decide the way in which the money shall be disposed of. The amount subscribed up to the present is not great, and those who feel that the sum should be increased are invited to forward their contributions promptly to Mr. Henry Gray. Hunting did much to raise the status of the profession; he always championed the cause in its relation to the State, he was a leading spirit in the National Association, and an ever welcome member of the local societies. Many a veterinary surgeon has been willingly helped out of a difficulty by him. He was a man whom we ought to delight to honour. Have we done enough to perpetuate his name and to give him the place he is entitled to in the ranks of our distinguished men?

MANGE TRAY.

Below is an illustration of a mange tray, made for me by Messrs. Arnold and Sons. It consists of a circular water chamber with a concave upper part nicely japanned, which readily shows any object on its surface. With its aid one can easily and quickly examine a considerable amount of scurf from a suspected case of mange.

Method.—Fill the chamber with hot water and screw on the cap. The tray must not be too hot, otherwise the parasites are destroyed, but it should be as hot as one can bear the back of one's hand on it, then spread your skin scraping thickly over

its surface. If there are any live acari present, they will very soon be seen with a lens, running almost like the proverbial cat on hot bricks.

I have no pecuniary interest, either directly or indirectly, in the sale of this tray, and the only request I made to Messrs. Arnold and Sons (to which they readily acceded) is that they pay 10 per cent. on the sale equally between our two benevolent societies.

D. PUGH, F.R.C.V.S.

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